Log Event A

Borehole # 30-05-03

Borehole Information

Farm : C	**Tank :** C-105	**Site Number :** 299-E27-81
N-Coord : 42,861	**W-Coord :** 48,282	**TOC Elevation :** 646.00
Water Level, ft :	**Date Drilled :** 9/30/1974	

Casing Record

Type : Steel-welded	Thickness : 0.280	ID, in. : 6
Top Depth, ft. : 0	Bottom Depth, ft. : 100	

Borehole Notes:
This borehole was drilled in September 1974 to a depth of 100 ft using 6-in. casing. The drilling report does not indicate if the borehole casing was perforated or grouted. The casing thickness is presumed to be 0.280 in., on the basis of the published thickness for schedule-40, 6-in. steel tubing. The top of the casing, which is the zero reference for the SGLS, is approximately flush with the ground surface.

Equipment Information

Logging System : 2	**Detector Type :** HPGe	**Detector Efficiency:** 35.0 %
Calibration Date : 10/1996	**Calibration Reference :** GJO-HAN-13	**Logging Procedure :** P-GJPO-1783

Log Run Information

Log Run Number :	1	**Log Run Date :**	02/03/1997	**Logging Engineer:**	Bob Spatz
Start Depth, ft.:	98.5	**Counting Time, sec.:**	100	**L/R :** L	**Shield :** N
Finish Depth, ft. :	49.0	**MSA Interval, ft. :**	0.5	**Log Speed, ft/min.:**	n/a

Log Run Number :	2	**Log Run Date :**	02/04/1997	**Logging Engineer:**	Bob Spatz
Start Depth, ft.:	50.0	**Counting Time, sec.:**	100	**L/R :** L	**Shield :** N
Finish Depth, ft. :	0.0	**MSA Interval, ft. :**	0.5	**Log Speed, ft/min.:**	n/a

Log Run Number :	3	**Log Run Date :**	02/04/1997	**Logging Engineer:**	Bob Spatz
Start Depth, ft.:	90.0	**Counting Time, sec.:**	100	**L/R :** L	**Shield :** N
Finish Depth, ft. :	70.0	**MSA Interval, ft. :**	0.5	**Log Speed, ft/min.:**	n/a

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Analysis Information

Analyst : E. Larsen

Data Processing Reference : P-GJPO-1787 Analysis Date : 07/02/1997

Analysis Notes :

This borehole was logged by the SGLS in three log runs. Two log runs were required to the log the length of the borehole. A third log run was performed as an additional quality assurance check on a segment of one of the primary log runs. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The energy calibration and peak-shape calibration from these spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation.

Casing correction factors for a 0.280-in.-thick steel casing were applied during analysis.

The man-made radionuclides Cs-137 and Co-60 were detected in this borehole. Continuous Cs-137 contamination was measured from the ground surface to a depth of 38.5 ft. Semicontinuous Cs-137 contamination was detected from 40 ft to the bottom of the logged interval (98.5 ft). Continuous Co-60 contamination was detected from 73 to 83 ft and at 84 ft.

The K-40 concentration values decrease sharply from 34.5 to 36.5 ft, increase significantly from 36.5 to 37.5 ft, then generally remain elevated to a depth of 74.5 ft. A zone of variable K-40 concentrations occurs between 40 and 58 ft. Generally increased KUT concentration values occur below about 75 ft. Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank C-105.

Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

The interval between 70 and 90 ft was relogged as a quality assurance measure to establish the repeatability of the radionuclide concentration measurements. The radionuclide concentrations shown were calculated using the separate data sets provided by the original and rerun logging runs.

An additional log plot compares spectral gamma data collected with the Radionuclide Logging System (RLS) in 1993 with spectral gamma data collected with the SGLS in 1997. Uncertainty bars and MDLs are not included on these plots.